10/539625

IN THE CLAIMS

JC17 Rec'd PCT/PTO 17 JUN 2005

- 1. (original): A process for the synthesis of an oligonucleotide in which an oligonucleotide is assembled on a swellable solid support using the phosphoramidite approach in the presence of an activator, wherein the activator is not tetrazole or a substituted tetrazole.
- 2. (original): A process according to claim 1, wherein the activator is selected from the group consisting of pyridinium, imidazolinium and benzimidazolinium salts; benzotriazole and derivatives thereof; and saccharin or a saccharin derivative.
- 3. (original): A process according to claim 2, wherein the activator has the general chemical formula:

$$(R)_{p}$$
 $N-H$
 $S=0$

wherein p is 0 or an integer from 1 to 4;

R for each occurrence is a substituent, or two adjacent R groups taken together with the carbon atoms to which they are attached form a six membered saturated or unsaturated ring; and

X is O or S.

- 4. (original): A process according to claim 3, wherein the activator is the N-methylimidazole, pyridine or 3-methylpyridine salt of saccharin.
- 5. (currently amended): A process according to any preceding claim 1, wherein the swellable support comprises functionalised polystyrene, partially hydrolysed polyvinylacetate or poly(acrylamide).
- 6. (currently amended): A process according to any preceding claim 1, wherein the process comprises coupling a nucleoside phosphoramidite with a nucleoside or oligonucleotide comprising a free hydroxy group.

- 7. (original): A process according to claim 6, wherein the nucleoside phosphoramidite is a deoxyribonucleside-3'-phosphoramidite or ribonucleside-3'-phosphoramidite.
- 8. (currently amended): A process according to claim 6 or 7, wherein the nucleoside or oligonucleotide comprising a free hydroxy group comprises a free 5'-hydroxy group.
- 9. (currently amended): A process according to any one of claims 6 to 8 claim 6, wherein the nucleoside or oligonucleotide comprising a free hydroxy group is attached to the solid support by a cleavable linker.
- 10. (currently amended): A process according to any preceding claim 1, wherein the process employs a solvent which swells the solid support.
- 11. (original): A process according to claim 10, wherein the solvent is acetonitrile, dimethylformamide, N-methylpyrrolidinone, dichloromethane, tetrahydrofuran or pyridine.
- 12. (currently amended): A process according to any preceding claim 1, wherein the assembled oligonucleotide is cleaved from the solid support.
- 13. (new): A process for the synthesis of an oligonucleotide which comprises coupling a nucleoside phosphoramidite with a nucleoside or oligonucleotide comprising a free hydroxy group in the presence of an activator, wherein:
- a) the nucleoside or nucleotide comprising a free hydroxy group is attached to a swellable solid support by a cleavable linker, said swellable support being selected from the group consisting of functionalized polystyrene, partially hydrolyzed polyvinylacetate and poly(acrylamide);
- b) said activator has the general chemical formula:

wherein p is 0 or an integer from 1 to 4;

R for each occurrence is a substituent, or two adjacent R groups taken together with the carbon atoms to which they are attached form a six membered saturated or unsaturated ring; and

X is O or S;

the employing a solvent which swells the solid support selected from the group consisting of acetonitrile, dimethylformamide, N-methylpyrrolidinone, dichloromethane, tetrahydrofuran and pyridine.

14. (new): A process according to claim 13, wherein the activator is the N-methylimidazole, pyridine or 3-methylpyridine salt of saccharin.